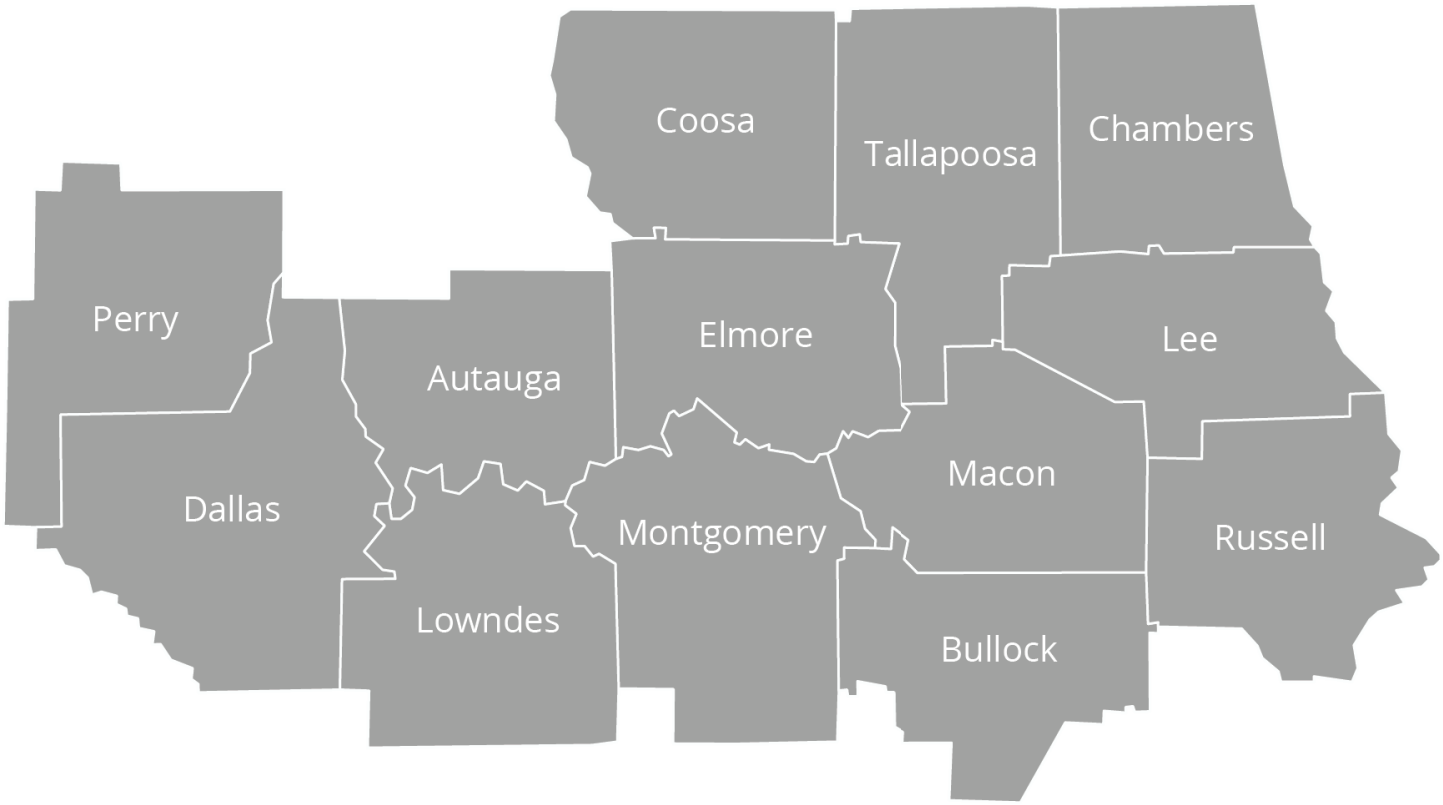
STATE OF THE WORKFORCE REPORT XV:

CENTRAL ALABAMAWORKS



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SUMMARY

This report analyzes workforce supply and demand issues using available metrics of workforce characteristics for Central AlabamaWorks and presents some implications and recommendations.

Central AlabamaWorks had a 3.9 percent unemployment rate in March 2021, with 13,159 unemployed. An underemployment rate of 23.9 percent for 2020/2021 means that the region has a 90,319-strong available labor pool that includes 77,160 underemployed workers who are looking for better jobs and are willing to commute farther and longer for such jobs.

Net out-commuting increased from 8,963 in 2005 to 13,159 in 2018. Regional commute times and distances were slightly down in 2020 from 2019 implying that congestion somewhat eased. However, congestion is likely to be an issue as the region's economy recovers from the recent pandemic led recession and therefore it is important to continuously maintain and develop transportation infrastructure and systems.

By sector the top five employers in the region are manufacturing, health care and social assistance, retail trade, accommodation and food services, and educational services. These five industries provided 158,610 jobs, 57.3 percent of the regional total in the first quarter of 2020. Two of the leading employers—manufacturing and educational services—paid higher wages than the region's $3,847 monthly average. Economic development should aim to diversify and strengthen the region's economy by retaining, expanding, and attracting more high-wage providing industries; workforce development should focus on preparing workers for these industries.

On average 10,889 jobs were created per quarter from second quarter 2001 to first quarter 2020 and quarterly net job flows averaged 27. Job creation is the number of new jobs that are created either by new businesses or through expansion of existing firms. Net job flows reflect the difference between current and previous employment at all businesses.

The top five high-demand occupations are Combined Food Preparation and Serving Workers, Including Fast Food; Retail Salespersons; Laborers and Freight, Stock, and Material Movers, Hand; Waiters and Waitresses; and Assemblers and Fabricators, All Other, Including Team Assemblers.

The top five fast-growing occupations are Occupational Therapy Assistants; Information Security Analysts; Computer and Information Research Scientists; Maintenance Workers, Machinery; and Physician Assistants.

The top 50 high-earning occupations are mainly in management, health, engineering, and computer fields and have a minimum salary of $93,251 and a high of $286,735 per year. Six of the top 10 are health-related occupations.

Of the top 40 high-demand, the top 20 fast-growing, and 50 high-earning occupations, only two—Nurse Practitioners and Software Developers, Applications—belong to all three categories. Five occupations are both high-demand and fast-growing, three are in fast-growing and high-earning, and five are in high-demand and high-earning.

Of the region's 714 occupations, 141 are expected to decline over the 2018 to 2028 period. The 20 sharpest declining occupations are expected to lose a minimum of 30 jobs each and at least three percent. Education and training for these occupations should slow accordingly.

Skill and education requirements for jobs keep

rising. Educational and training requirements of high-earning, fast-growing, and high-demand occupations demonstrate the importance of education in developing the future workforce. In the future, more jobs will require postsecondary education and training at a minimum.

The importance of basic skills generally and for high-demand, high-growth, and high-earning jobs indicates a strong need for training in these skills. For Central AlabamaWorks the pace of training needs to increase for technical and basic (science) skills. The scale of training should be raised for basic and social skills. Ideally, all high school graduates should possess basic skills so that postsecondary and higher education can focus on other and more complex skills. Employers should be an integral part of planning for training as they can help identify future skill needs and any existing gaps.

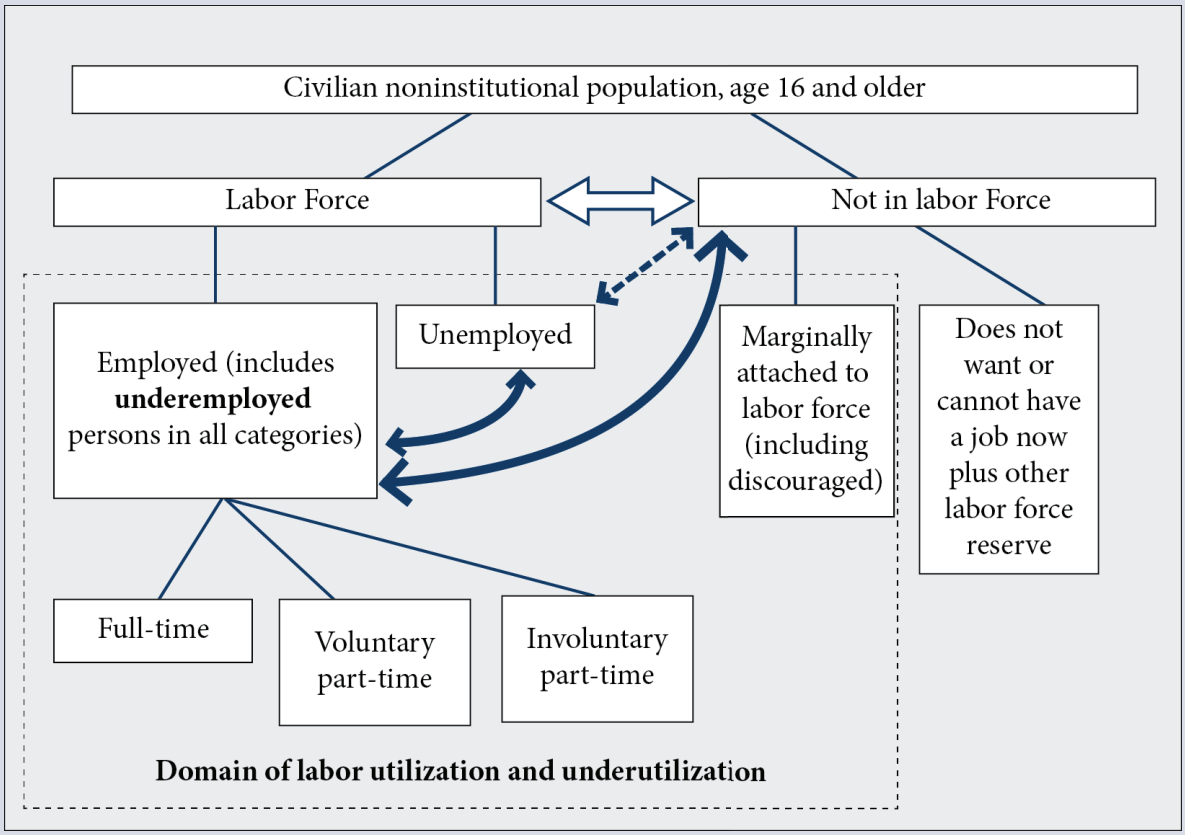
From a 2018 base, worker shortfalls of about 3,700 and 9,800 are expected for 2028 and 2030, respectively. The worker shortfall will reach 20,900 by 2040. This will demand a focus on both worker skills and the expected shortfall through 2040. Worker shortfalls in critical occupations will also need to be addressed continuously. Strategies to address skill needs and critical occupation shortfalls should aim to raise worker productivity and increase labor force participation and might include: (1) improvements in education and its funding; (2) continuation and enhancement of programs to assess, retrain, and place dislocated workers; (3) focusing on hard-to-serve populations (e.g., out-of-school youth); (4) lowering the high school dropout rate; (5) use of economic opportunities to attract new and younger residents; (6) encouragement of older worker participation in the labor force; and (7) facilitation of in-commuting.

Improving education is important because (i) a highly educated and productive workforce is a critical economic development asset, (ii) productivity rises with education, (iii) educated people are more likely to work, and (iv) it yields high private and social rates of return on investment. Workforce development must view all of education and other programs (e.g., adult education, career technical training, worker retraining, career readiness, etc.) as one system. Funding to support workforce development may require tax reform at state and local levels and should provide for flexibility as workforce needs change over time and demand different priorities. Publicizing both private and public returns to education can encourage individuals to raise their own educational attainment levels, while also promoting public and legislative support for education.

Higher incomes that come with improved educational attainment and work skills will help to increase personal income for the region as well as raise additional local (county and city) tax revenues. This is important, especially for a region whose per capita income is below the state average.

Both workforce development and economic development are very crucial in building a strong and well-diversified regional economy. Indeed, one cannot achieve success without the other.

LABOR UTILIZATION AND SUPPLY FLOWS



Source: Addy et al[1] and Canon et al[2]

The chart above presents labor utilization and supply flows that explain labor market dynamics in view of recent study findings. The civilian noninstitutional population age 16 and above is comprised of participants in the labor force and nonparticipants. The labor force is made of employed and unemployed persons; the unemployed do not have a job but are actively searching for work. Employed persons include fully employed and underemployed persons in all categories of work (full-time, voluntary part-time, and involuntary part-time). Nonparticipants in the labor force include retirees (voluntary and involuntary), people who do not want to or cannot work for various reasons (e.g., disability, caring for family members, in school or training, etc.), discouraged workers, and other labor force reserves. It has been suggested that a subgroup of nonparticipants referred to as the "waiting group" is more likely than the rest of the nonparticipants to take a job if wages and conditions are satisfactory, but they do not actively search for work. It has been shown that between January 2003 and August 2013, the flow of nonparticipants into employment was 1.6 times that of unemployed persons transitioning into employment, which may be due to the presence of the waiting group.[1, 2] Nonparticipant flows to employment are larger in services, management, and professional occupations while unemployed flows to employment are higher in physically intensive occupations such as construction workers and miners. Industry effects should vary by the type and number of occupations they contain. This finding enhances the common understanding of labor market dynamics and influences workforce availability and skills gap analyses. Skill and spatial mismatches present additional complications to labor market dynamics. For example, unemployment can coexist with significant job availability.

[1]Addy, S.N., Bonnal, M., and Lira, C. (2012). Towards a More Comprehensive Measure of Labor Underutilization: The Alabama Case, *Business Economics,* vol. 47(3) .
[2]Canon, M.E., Kudlyak, M., and Reed, M. (2014). Not Everyone Who Joins the Ranks of the Employed was "Unemployed", *The Regional Economist*, January.

WORKFORCE SUPPLY

Labor Force Activity

The labor force includes all persons in the civilian noninstitutional population who are age 16 and over and who have a job or are actively looking for one. Typically, those who have no job and are not looking for one are not included (e.g., students, retirees, the disabled, and discouraged workers). Table 5.1 shows labor force information for Central AlabamaWorks and its 13 counties for 2020 and March 2021. Alabama labor force information is available from the Labor Market Information (LMI) Division of the Alabama Department of Labor. LMI compiles data in cooperation with the U.S. Bureau of Labor Statistics.

The 2007 recession sharply raised county unemployment rates, but a long and gradual economic recovery lowered unemployment below the pre-recession levels in 2019 before the COVID-19 pandemic led recession hit in the first quarter of 2020. The pandemic disrupted economic activities leading to a sharp increase in county unemployment rates in the region. As personal protection equipment and testing became more available and Congress provided much needed economic relief through the CARES Act, businesses and employers resumed operations albeit at a staggered pace. This somewhat lowered unemployment rates and annual county unemployment rates ranged between 4.9 percent to 13.3 percent for 2020 (6.6 percent for the region). The regional unemployment rate was above the statewide rate of 5.9 percent. A strong economic recovery continued in the region fueled by the availability of COVID-19 vaccines and more economic relief through the Consolidated Appropriations Act, 2021 and the American Rescue Plan Act, 2021. Unemployment rates further declined and by March 2021, regional county unemployment rates ranged from 2.7 percent to 9.1 percent, with 3.9 percent for the region. The regional unemployment rate was slightly above Alabama's 3.4 percent in March 2021. Unemployment rates were above Alabama's 3.4 percent in eight counties that month and were lowest in Lee County and highest in Lowndes.

Central AlabamaWorks' annual unemployment rates for 2000 to 2020 are shown in Figure 5.1. The region's unemployment rate rose to 11.7 percent in 2009 due to the last financial recession and economic recovery was slow due to the decades long structural changes in the region's economy. The regional unemployment rate dropped below pre-recession levels in 2017 for the first time and further declined to a record low level of 3.1 percent in 2019, as the region continued to experience the longest economic expansion in decades. However, in 2020 the region's unemployment rose to 5.3 percent due to massive job losses caused by the COVID-19 led recession. The unemployment rate has been falling at a slow pace as COVID-19 persistence and supply chain backlogs and interruptions continue to limit business operations and labor supply. Year-to-date monthly labor force data indicate a significantly lower regional unemployment rate for 2021 than seen in 2020, but the lingering COVID-19 induced challenges are likely to keep unemployment above the pre-recession level at least through 2022.

Nonagricultural employment of the region's residents averaged 265,703 jobs from the second quarter of 2001 to the first quarter of 2020 (Figure 5.2). The number of jobs reached a high of 279,078 in the third quarter of 2007, but dropped to 253,888 in the first quarter of 2012 due to job losses during the 2007 recession and structural changes in the region's economy. Since then, the number of jobs slowly edged upwards and reached 277,344 in the third quarter of 2019, but dropped to 276,782 in the first quarter of 2020.

Figure 5.3 shows worker distribution by age in Central AlabamaWorks for the first quarter of 2020. The age distribution of the region's workforce shows regional workers are slightly older than Alabama's. Older workers, age 55 and over, are 22.9 percent of the region's nonagricultural employment, just above 22.8 percent for the state. Those who are age 65 and over constitute 6.2 percent of nonagricultural employment, just above 6.2 percent for Alabama. Labor force participation of younger residents in the region must increase to meet long term occupational projections for growth and replacement; otherwise, older workers may have to work longer or policies to boost immigration might be needed.

Table 5.1 Central AlabamaWorks Labor Force Information

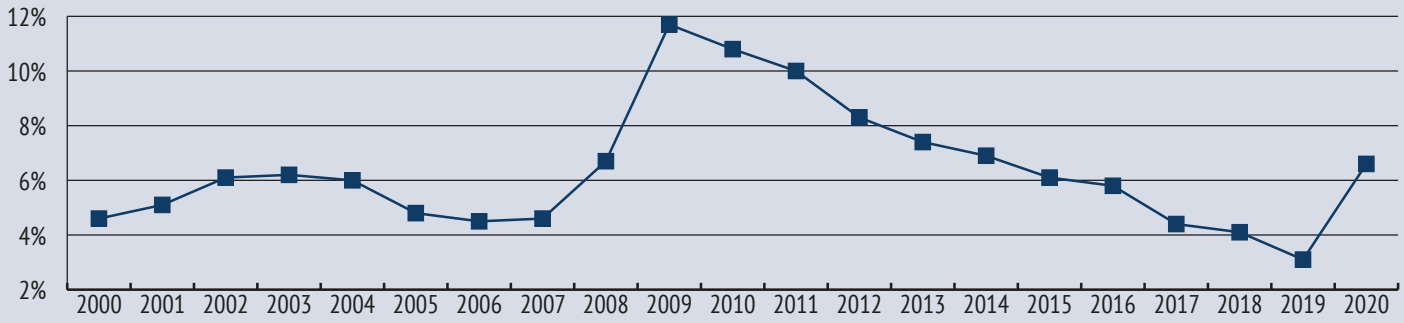
2020 Annual Average

	Labor Force	Employed	Unemployed	Rate (%)
Autauga	25,838	24,576	1,262	4.9
Bullock	4,818	4,553	265	5.5
Chambers	15,865	14,787	1,078	6.8
Coosa	4,392	4,150	242	5.5
Dallas	14,619	13,049	1,570	10.7
Elmore	36,620	34,843	1,777	4.9
Lee	75,564	71,629	3,935	5.2
Lowndes	3,661	3,173	488	13.3
Macon	8,063	7,290	773	9.6
Montgomery	107,103	98,735	8,368	7.8
Perry	3,437	3,064	373	10.9
Russell	23,500	22,290	1,210	5.1
Tallapoosa	17,864	16,625	1,239	6.9
Central ALWorks	341,344	318,764	22,580	6.6
Alabama	2,230,118	2,099,062	131,056	5.9
U.S.	160,742,000	147,795,000	12,947,000	8.1

March 2021

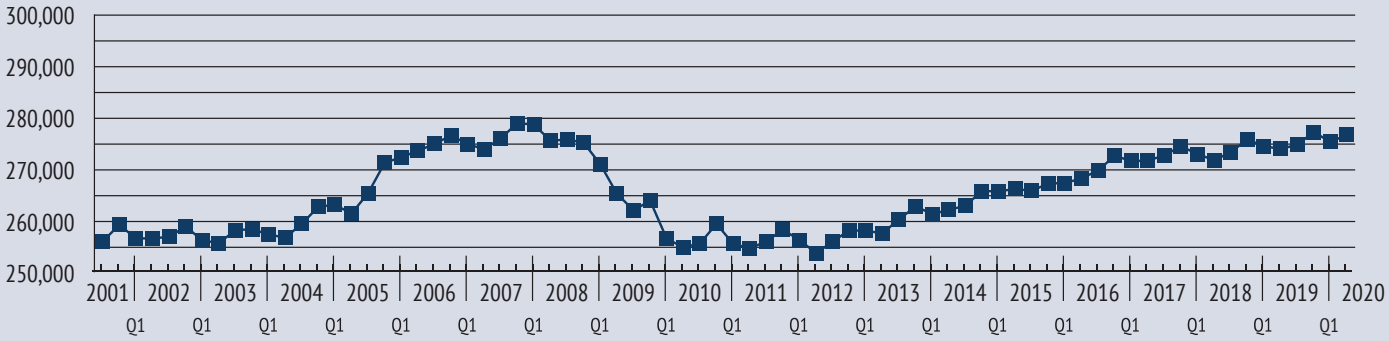
	Labor Force	Employed	Unemployed	Rate (%)
Autauga	25,433	24,696	737	2.9
Bullock	4,644	4,458	186	4.0
Chambers	15,797	15,208	589	3.7
Coosa	4,342	4,211	131	3.0
Dallas	13,842	12,885	957	6.9
Elmore	36,089	35,087	1,002	2.8
Lee	75,849	73,769	2,080	2.7
Lowndes	3,477	3,162	315	9.1
Macon	7,790	7,336	454	5.8
Montgomery	104,477	99,433	5,044	4.8
Perry	3,160	2,924	236	7.5
Russell	23,059	22,340	719	3.1
Tallapoosa	18,314	17,605	709	3.9
Central ALWorks	336,273	323,114	13,159	3.9
Alabama	2,213,954	2,138,166	75,788	3.4
U.S.	160,397,000	150,493,000	9,905,000	6.2

Figure 5.1 Central AlabamaWorks Unemployment Rate



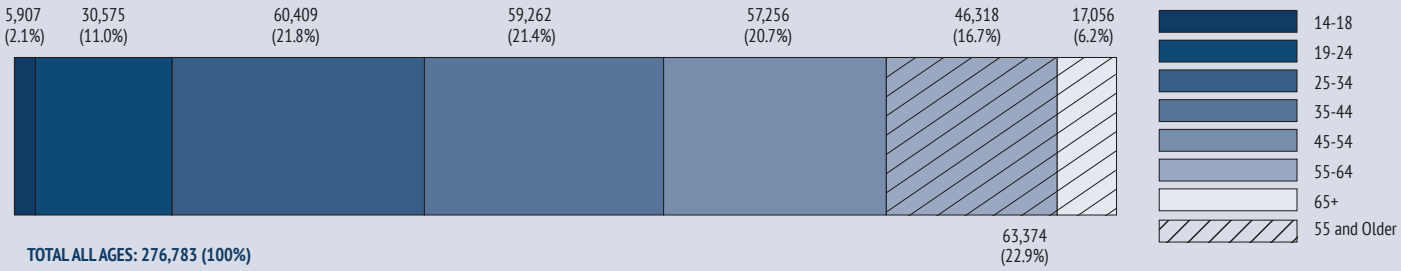
Source: Alabama Department of Labor.

Figure 5.2 Central AlabamaWorks Nonagricultural Employmentt



Source: Alabama Department of Labor and U.S. Census Bureau.

Figure 5.3 Nonagricultural Employment - Workers by Age Group (First Quarter 2020)



Source: U.S. Census Bureau, Local Employment Dynamics Program.
Note: Rounding errors may be present. Nonagricultural employment is by place of work, not residence.

Commuting Patterns

In 2005 more residents commuted out of the region for work than nonresidents who commuted in; the number of both in- and out-commuters was 109,565 and net out-commuters was 8,963 (Table 5.2). Net outflows fluctuated over the years and were 13,159 in 2018. Within the region, Montgomery, Elmore, and Lee counties have the largest number of in- and out-commuters. The most in-commuters are from Central Six (14,262), Southeast (13,080), Southwest (8,199), North (7,511), and East AlabamaWorks (6,559). The majority of the out-commuters from Central AlabamaWorks region work in Central Six (19,284), Southeast (7,247), North (6,547), Southwest (6,064), and East (5,818) regions. However, 24,889 residents commute to Georgia for work, especially to Columbus, Georgia.

Table 5.2 also shows that regional average commute times and distances were slightly down in 2020 compared

Table 5.2 Central AlabamaWorks Commuting Patterns

Year	Inflow	Outflow
2005	50,301	59,264
2006	60,843	51,144
2007	59,989	67,699
2008	60,941	69,782
2009	61,701	69,918
2010	64,372	69,398
2011	64,988	72,506
2012	61,957	73,766
2013	63,597	74,708
2014	64,832	75,620
2015	61,677	74,489
2016	62,570	76,760
2017	66,204	79,609
2018	66,251	79,410

Central ALWorks Counties	Inflow, 2018		Outflow, 2018	
	Number	Percent	Number	Percent
Autauga	7,128	5.2	16,991	11.3
Bullock	1,589	1.2	2,460	1.6
Chambers	4,633	3.4	10,315	6.8
Coosa	839	0.6	3,381	2.2
Dallas	5,000	3.6	6,367	4.2
Elmore	11,013	8.0	24,784	16.4
Lee	23,806	17.3	25,508	16.9
Lowndes	1,589	1.2	2,193	1.5
Macon	2,645	1.9	6,159	4.1
Montgomery	63,907	46.4	25,209	16.7
Perry	1,099	0.8	2,226	1.5
Russell	8,822	6.4	14,748	9.8
Tallapoosa	5,602	4.1	10,490	7.0

	Percent of Workers					
Average commute time (one-way)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Less than 20 minutes	48.7	50.9	45.8	51.6	49.9	49.0
20 to 40 minutes	33.6	28.8	31.3	29.6	27.9	27.2
40 minutes to an hour	8.5	9.6	11.4	8.3	10.6	9.9
More than an hour	2.7	2.7	5.1	2.1	2.4	2.6
Average commute distance (one-way)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Less than 10 miles	40.3	42.5	38.5	43.2	40.7	40.2
10 to 25 miles	35.8	33.5	34.3	36.3	34.7	35.3
25 to 45 miles	15.0	15.9	15.6	12.8	13.9	13.0
More than 45 miles	6.7	5.4	9.6	5.2	7.2	7.4

Note: Rounding errors may be present.
Source: U.S. Census Bureau; Alabama Department of Labor; and Center for Business and Economic Research, The University of Alabama.

to 2019 implying that congestion somewhat eased in the region. Traffic might have been lighter due to the COVID-19 pandemic and the related economic recession and an increase in number of workers remotely. However, as the regional economy recovers and the pandemic eases, congestion is likely to pose challenges in high growth areas. Regional transportation infrastructure and systems must be maintained and developed to ensure a smooth flow of goods and movement of workers. Impeding the mobility of workers and goods can delay or slow economic recovery.

Population

Total population in Central AlabamaWorks was 741,877 in 2010, a 6.6 percent increase from the 2000 decennial census (Table 5.3). This growth was lower than Alabama's 7.5 percent growth rate. From 2000 to 2010, population grew in six of Central AlabamaWorks counties and shrank in the other seven. Population growth was fastest in Autauga County followed by Lee and Elmore. However, the 2020 decennial census results show that the region's population grew by 5.5 percent from the 2010 Census, which is faster than the state's growth of 5.1 percent in the period. Lee County had the highest growth followed by Russell, Elmore, and Autauga. Population declined in eight of the 13 counties in the region. Population declined most in Perry County followed by Dallas and Coosa.

Central AlabamaWorks population decennial counts, estimates, and projections by age group are shown in Table 5.5. The population aged 65 and over is expected to grow rapidly, with more of the baby boom generation turning 65. Growth of the prime working age group (20-64) and youth (0-19) is expected to lag that of the total population and pose a challenge for workforce development. If employment growth outpaces labor force growth as is expected in the long term, areas experiencing rapid job gains may need to consider investments in amenities and infrastructure to attract new residents and workers.

Table 5.3 Central AlabamaWorks Population

County	1990 Census	2000 Census	2010 Census	2020 Census	Change 2000-2010 Number	Change 2000-2010 Percent	Change 2010-2020 Number	Change 2010-2020 Percent
Autauga	34,222	43,671	54,571	58,805	10,900	25.0	4,234	7.8
Bullock	11,042	11,714	10,914	10,357	-800	-6.8	-557	-5.1
Chambers	36,876	36,583	34,215	34,772	-2,368	-6.5	557	1.6
Coosa	11,063	12,202	11,539	10,387	-663	-5.4	-1,152	-10.0
Dallas	48,130	46,365	43,820	38,462	-2,545	-5.5	-5,358	-12.2
Elmore	49,210	65,874	79,303	87,977	13,429	20.4	8,674	10.9
Lee	87,146	115,092	140,247	174,241	25,155	21.9	33,994	24.2
Lowndes	12,658	13,473	11,299	10,311	-2,174	-16.1	-988	-8.7
Macon	24,928	24,105	21,452	19,532	-2,653	-11.0	-1,920	-9.0
Montgomery	209,085	223,510	229,363	228,954	5,853	2.6	-409	-0.2
Perry	12,759	11,861	10,591	8,511	-1,270	-10.7	-2,080	-19.6
Russell	46,860	49,756	52,947	59,183	3,191	6.4	6,236	11.8
Tallapoosa	38,826	41,475	41,616	41,311	141	0.3	-305	-0.7
Central	622,805	695,681	741,877	782,803	46,196	6.6	40,926	5.5
Alabama	4,040,587	4,447,100	4,779,736	5,024,279	332,636	7.5	244,543	5.1
United States	248,709,873	281,421,906	308,745,538	331,449,281	27,323,632	9.7	22,703,743	7.4

Source: Center for Business and Economic Research, The University of Alabama and U.S. Census Bureau.

Table 5.4 Population by Age Group and Projections

Age Group	2000	2010	2018	2028	2030	2035	2040
0-19	204,779	203,954	196,741	207,638	208,220	212,343	218,818
20-24	59,972	63,910	62,817	67,276	68,129	69,927	71,717
25-29	49,131	50,509	57,215	52,160	52,409	55,335	56,844
30-34	46,416	46,281	49,153	51,623	52,092	53,235	56,682
35-39	52,437	48,174	48,578	50,420	51,349	53,118	54,671
40-44	51,837	47,399	45,148	50,203	50,106	53,004	55,177
45-49	46,811	52,126	48,569	49,006	50,746	50,939	54,351
50-54	41,795	51,945	48,578	47,681	46,951	51,716	52,229
55-59	32,466	45,783	51,310	47,854	48,636	47,264	52,394
60-64	27,023	39,999	47,727	47,760	46,166	48,605	47,516
65+	83,014	91,797	118,783	153,307	160,653	171,309	181,459
20-64 Total	**407,888**	**446,126**	**459,094**	**463,982**	**466,585**	**483,143**	**501,581**
Total Population	**695,681**	**741,877**	**774,618**	**824,927**	**835,458**	**866,794**	**901,858**
Change from 2018							
0-19				5.5%	5.8%	7.9%	11.2%
20-64				1.1%	1.6%	5.2%	9.3%
Total Population				6.5%	7.9%	11.9%	16.4%

Source: Center for Business and Economic Research, The University of Alabama and U.S. Census Bureau.

Educational Attainment

Educational attainment from 2015 to 2019 of Central AlabamaWorks residents who were 25 years old and over are shown in Table 5.5 and Figure 5.6. The region's educational attainment is higher for bachelor's or higher degree holders than that of the state and lower for high school attainment. Twenty-seven percent of the residents have a bachelor's or higher degree while 86.0 percent graduated from high school compared to Alabama's 25.5 percent for a bachelor's or higher degree and 86.2 percent for high school or higher. Lee County has higher educational attainment than the other twelve counties, followed by Autauga for high school diplomas or higher, and Montgomery for a bachelor's degree or higher. Bullock County has the lowest educational attainment, followed by Lowndes for high school diploma or higher and Coosa for bachelor's degree or higher. Educational attainment is important as skills rise with education and high-wage jobs for the 21st century demand more skill sets. Efforts to improve educational attainment are needed for most of the counties.

Underemployment and Available Labor

Labor force data are often limited to information on the employed and the unemployed that is available from government sources. However, this information is not complete from the perspective of employers. New or expanding employers are also interested in underemployment because current workers are potential employees. In fact, experience requirements in job ads are evidence that many prospective employers look beyond the unemployed for workers.

Workers in occupations that underutilize their experience, training, and skills are underemployed. These workers might look for other work because their current wages are below what they believe they can earn or because they wish to not be underemployed. Underemployment occurs for various

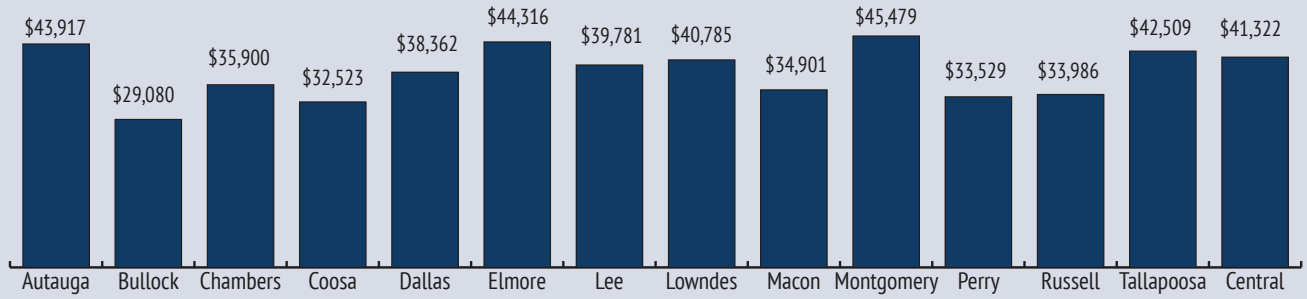
Per Capita Income

Per capita income (PCI) in Central AlabamaWorks was $41,322 in 2019 (Figure 5.4), up 46.0 percent from 2005, but $2,823, or 6.4 percent, below the state average of $44,145. Figure 5.5 shows that Montgomery County had the highest PCI at $45,479, followed by Elmore at $44,316 and Autauga at $43,917. Bullock County had the lowest PCI at $29,080, followed by Coosa at $32,523. Elmore and Montgomery counties had higher PCI than the state average.

Figure 5.4 Central AlabamaWorks Per Capita Income

Source: U.S. Bureau of Economic Analysis and Center for Business and Economic Research, The University of Alabama.

Figure 5.5 Per Capita Income, 2019



Source: U.S. Bureau of Economic Analysis and Center for Business and Economic Research, The University of Alabama.

reasons including (i) productivity growth, (ii) spousal employment and income, and (iii) family constraints or personal preferences. Underemployment is unique to areas because of the various contributing factors combined with each area's economic, social, and geographic characteristics.

The existence of underemployment identifies economic potential that is not being realized. It is extremely difficult to measure this economic potential because of uncertainties regarding additional income that the underemployed can bring to an area. It is clear, however, that underemployment provides opportunities for selective job creation and economic growth. A business that needs skills prevalent among the underemployed could locate in places that have such workers regardless of those areas' unemployment rates. A low unemployment rate, which may falsely suggest limited labor availability, is therefore not a hindrance to the business.

The underemployed present a significant labor pool because they tend to respond to job opportunities that they believe are better for reasons that include (i) higher income, (ii) more benefits, (iii) superior terms and conditions of employment, and (iv) a better match with skills, training, and experience. The underemployed also create opportunities for entry level workers as they leave lower-paying jobs for better-paying ones. Even if their previously-held positions are lost or not filled (perhaps due to low unemployment or adverse economic conditions), there is economic growth in gaining higher-paying jobs. Such income growth boosts consumption, savings, and tax collections. Quantifying the size of the underemployed is a necessary first step

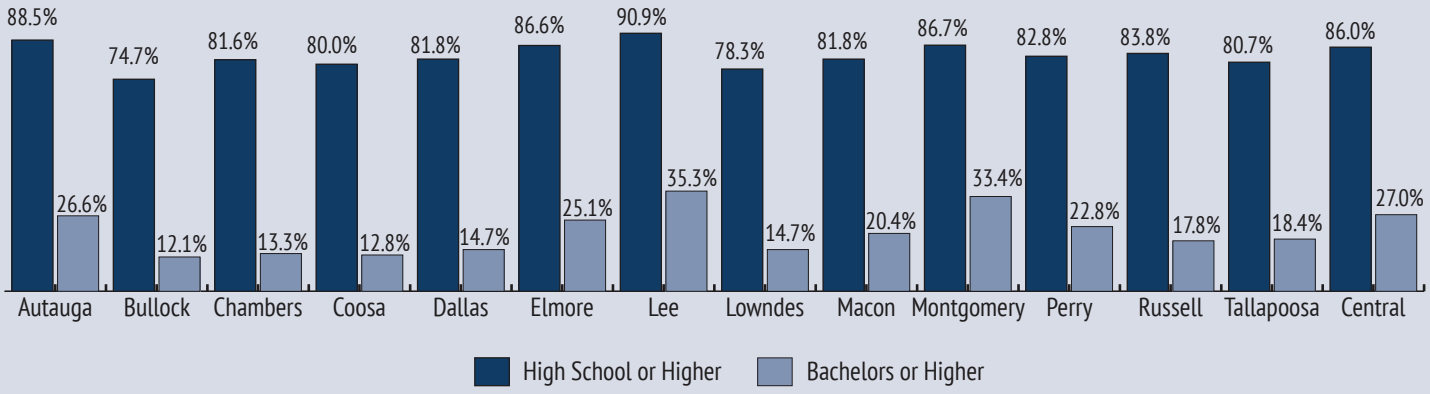
Table 5.5 Educational Attainment of Population 25 Years and Over, 2015-2019

	Autauga	Bullock	Chambers	Coosa	Dallas	Elmore	Lee	Lowndes
Total	37,367	7,101	23,789	8,259	26,200	56,093	97,055	7,062
No schooling completed	267	112	496	97	389	480	1,407	93
Nursery to 4th grade	90	42	83	32	135	69	149	56
5th and 6th grade	139	76	253	53	256	347	319	44
7th and 8th grade	442	149	648	211	346	1,615	875	204
9th grade	756	72	498	260	483	1,229	1,126	184
10th grade	982	222	1,084	343	1,317	1,481	1,421	237
11th grade	919	633	736	431	1,271	1,397	2,089	409
12th grade, no diploma	696	492	574	225	560	885	1,463	302
High school graduate/equivalent	12,551	2,860	8,739	3,327	9,411	18,232	23,026	2,800
Some college, less than 1 year	2,140	314	1,411	537	1,129	3,343	6,241	227
Some college, 1+ years, no degree	5,315	955	3,885	1,190	4,140	7,658	15,752	843
Associate degree	3,141	318	2,219	494	2,909	5,297	8,914	626
Bachelor's degree	6,019	527	2,260	709	2,305	9,143	19,015	652
Master's degree	2,875	212	634	289	1,278	3,696	10,682	321
Professional school degree	499	69	209	48	175	610	1,887	37
Doctorate degree	536	48	60	13	96	611	2,689	27

	Macon	Montgomery	Perry	Russell	Tallapoosa	Central
Total	12,033	150,570	5,883	38,920	28,667	498,999
No schooling completed	125	2,042	275	451	465	6,699
Nursery to 4th grade	82	623	11	84	147	1,603
5th and 6th grade	91	1,094	35	478	186	3,371
7th and 8th grade	197	2,265	190	960	642	8,744
9th grade	325	3,012	95	638	816	9,494
10th grade	352	4,123	118	1,275	1,400	14,355
11th grade	628	3,953	85	1,258	1,058	14,867
12th grade, no diploma	390	2,866	201	1,153	832	10,639
High school graduate/equivalent	3,633	37,648	2,172	12,237	9,376	146,012
Some college, less than 1 year	612	7,862	225	2,789	1,897	28,727
Some college, 1 + years, no degree	2,278	24,304	946	6,299	4,031	77,596
Associate degree	870	10,524	190	4,361	2,530	42,393
Bachelor's degree	1,414	29,531	757	4,453	3,394	80,179
Master's degree	812	15,141	479	2,014	1,351	39,784
Professional school degree	91	3,634	25	273	433	7,990
Doctorate degree	133	1,948	79	197	109	6,546

Source: Center for Business and Economic Research, The University of Alabama and U.S. Census Bureau, American Community Survey.

Figure 5.6 Educational Attainment, 2015-2019



Source: Center for Business and Economic Research, The University of Alabama and U.S. Census Bureau, American Community Survey.

in considering this group for economic development, workforce training, planning, and other purposes. It is important to note that the underemployed can take on more responsibilities and earn more income, but they cannot be counted on to address possible future worker shortages as they are already employed.

Central AlabamaWorks had an underemployment rate of 23.9 percent in 2020/2021. Applying this rate to March 2021 labor force data means that 77,160 employed residents were underemployed (Table 5.6). Adding the underemployed workers to unemployed persons gives a total available labor pool of 90,319 for the region. This is 6.9 times the number of unemployed and is a more realistic measure of the available labor pool in the region. Prospective employers must be able to offer the underemployed higher wages, better benefits or terms of employment, or some other incentives to induce them to change jobs. County underemployment rates ranged from 16.0 percent for Elmore County to 30.3 percent for Tallapoosa. Montgomery County had the largest available labor pool, followed by Lee and Perry had the smallest. The underemployed workers are willing to commute farther and longer for a better job. For a one-way commute, 46.7 percent are prepared to travel 20 or more minutes and 36.5 percent will go extra 20 miles or

Table 5.6 Underemployed and Available Labor by County

	Central	Autauga	Bullock	Chambers	Coosa	Dallas	Elmore
Labor Force	336,273	25,433	4,644	15,797	4,342	13,842	36,089
Employed	323,114	24,696	4,458	15,208	4,211	12,885	35,087
Underemployment rate	23.9%	23.6%	25.5%	17.4%	21.1%	25.0%	16.0%
Underemployed workers	77,160	5,831	1,136	2,645	886	3,221	5,614
Unemployed	13,159	737	186	589	131	957	1,002
Available labor pool	**90,319**	**6,568**	**1,322**	**3,234**	**1,017**	**4,178**	**6,616**
	Lee	**Lowndes**	**Macon**	**Montgomery**	**Perry**	**Russell**	**Tallapoosa**
Labor Force	75,849	3,477	7,790	104,477	3,160	23,059	18,314
Employed	73,769	3,162	7,336	99,433	2,924	22,340	17,605
Underemployment rate	24.1%	30.0%	26.8%	24.8%	17.0%	26.5%	30.3%
Underemployed workers	17,756	949	1,965	24,659	498	5,913	5,327
Unemployed	2,080	315	454	5,044	236	719	709
Available labor pool	**19,836**	**1,264**	**2,419**	**29,703**	**734**	**6,632**	**6,036**

Note: Rounding errors may be present. Based on March 2021 labor force data and 2020/2021 underemployment rates.
Source: Center for Business and Economic Research, The University of Alabama and Alabama Department of Labor.

more for a better job. In contrast, 39.5 percent of all workers are willing to add 20 minutes or more to their commute and 31.4 percent will go extra 20 miles or more for the same.

Underemployment rates for counties, AlabamaWorks regions, and the state were determined from an extensive survey on the state's workforce. A total of 2,025 complete responses were obtained from Central AlabamaWorks. More than half (1,047 respondents) were employed, of whom 250 respondents stated that they were underemployed. From most important to least, the primary reason given for being underemployed are low wages at available jobs, a lack of job opportunities in their area, other family or personal obligations, living too far from jobs, taking care of someone other than a child retirement, owning a house in the area, and childcare responsibilities. Ongoing economic development efforts can help in this regard. Nonworkers cite retirement and disability or other health concerns as the main reasons for their status, but many also cite social security limitations and low wages at available jobs as an additional reason. Such workers may become part of the labor force if those problems can be addressed. Indeed a 2014 study on workforce reentry found that the flow of labor force nonparticipants to employment status was 60.0 percent more than that of unemployed workers who gained employment. [3] This implies that the region's available labor pool could be larger than estimated in this report.

A comparison of underemployed workers to the overall workforce in Central AlabamaWorks shows that:

- Fewer work full-time and more of the part-timers would like to work full-time.
- Fewer hold multiple jobs.
- They have about the same commute times and distances as all workers.
- More work in business and financial operations; computer and mathematical; education, training, and library; healthcare support; protective services; food preparation and serving related; personal care and service; construction and extraction; production; and other occupations.
- By industry more are in manufacturing; retail trade; professional, scientific, and technical services; educational services; arts, entertainment, and recreation; accommodation and food services; and other services.
- They have slightly shorter job tenure and earn less.
- More were laid-off or furloughed from their jobs in the past 3 months and fewer have been recalled to work.
- Fewer believe their jobs fit well with their education and training, skills, and experience.
- More believe they are qualified for a better job based on their education and training and skills.
- More would leave their current jobs for higher income.
- More are willing to commute longer distances and times for a better job.
- Fewer are satisfied with their current jobs.
- More have sought better jobs in the preceding quarter.
- More are willing to train for a better job.
- Their median age is 52, just a year younger than for all employees.
- They have slightly lower educational attainment.
- Fewer are married and more are female.
- More are African-Americans or other nonwhite racial groups.
- More are of Hispanic ethnicity. [4]

Table 5.7 shows the detailed survey results on job satisfaction and willingness to train. Responses for overall job satisfaction as well as satisfaction with various aspects of the job were obtained. In general, most of the region's workers (77.4 percent) are satisfied or completely satisfied with their jobs. Workers are most satisfied with the work they do and least satisfied with the earnings they receive. Fewer underemployed workers are satisfied with their jobs (62.8 percent). The underemployed workers are most satisfied with their work shift and most dissatisfied with their earnings.

Workers are generally willing to train for a new or better job, with the underemployed being more willing (64.9 percent versus 53.7 percent). However, the willingness to train is strongly influenced by who pays for the cost of training.

[3] Canon, M.E., Kudlyak, M., and Reed, M. (2014). Not Everyone Who Joins the Ranks of the Employed was "Unemployed", *The Regional Economist*, January.

[4] Hispanic can be of any race.

Workers typically do not wish to pay for the training and so their willingness is highest when the cost is fully borne by the government and lowest when the trainee must pay the full costs. The underemployed workers are more willing to train for a new or better job even if they have to pay the full cost of training. The results show that workers expect the government to bear at least part of the training cost. This expectation may result from worker awareness of government workforce programs that provide such assistance.

Table 5.7 Job Satisfaction and Willingness to Train (Percent)

	Completely Dissatisfied	Dissatisfied	Neutral	Satisfied	Completely Satisfied
Job Satisfaction					
Employed					
Overall	3.3	3.8	15.0	23.2	54.2
Earnings	7.9	7.3	21.1	24.5	39.0
Retention	3.1	2.5	9.4	17.1	66.1
Work	1.3	1.3	7.6	21.6	67.5
Hours	2.3	3.8	9.3	18.5	65.6
Shift	2.5	2.1	6.7	14.3	73.7
Conditions	4.3	5.0	11.4	23.0	56.1
Commuting Distance	3.2	3.5	10.4	13.4	69.0
Underemployed					
Overall	5.6	8.8	22.4	20.0	42.8
Earnings	20.0	12.8	26.8	20.0	19.6
Retention	8.4	3.6	17.2	17.2	54.0
Work	3.6	3.2	11.2	20.8	59.6
Hours	2.4	6.8	12.0	19.2	58.4
Shift	4.8	3.2	7.2	14.4	70.0
Conditions	7.2	8.4	16.0	22.8	44.8
Commuting Distance	5.2	4.8	9.2	14.0	66.4

	Completely Unwilling	Unwilling	Neutral	Willing	Completely Willing
Willingness to Train					
Employed					
For a new or better job	22.0	5.2	17.3	10.7	43.0
If paid by trainee	45.5	21.0	18.1	5.6	6.2
If paid by trainee and government	15.8	12.1	31.9	19.9	16.5
If paid by government	3.6	2.8	10.0	12.7	69.8
Underemployed					
For a new or better job	16.7	1.8	14.5	8.8	56.1
If paid by trainee	44.2	20.0	16.8	9.0	6.8
If paid by trainee and government	12.6	9.5	29.5	22.1	21.1
If paid by government	2.6	0.5	6.8	10.5	79.5

Note: Rounding errors may be present.
Source: Center for Business and Economic Research, The University of Alabama.

WORKFORCE DEMAND

Industry Mix

The manufacturing sector was the leading employer with 37,131 jobs in the first quarter of 2020 (Table 5.8). Rounding out the top five industries by employment are health care and social assistance; retail trade; accommodation and food services; and educational services. These five industries provided 158,610 jobs or 57.3 percent of the regional total. The average monthly wage across all industries in the region was $3,847; two leading employers—manufacturing and educational services—paid more than this average. However, these were not the highest paying sectors. The highest average monthly wages were for utilities at $7,824; finance and insurance at $6,383; wholesale trade at $5,747; management of companies and enterprises at $5,620; professional, scientific, and technical services at $5,363, and information with $5,201. Accommodation and food services paid the least at $1,683. New hire monthly earnings averaged $2,302, about 60 percent of the region's average monthly wage. Utilities had the highest average monthly new hire wages with $6,840, followed by information at $4,039 and wholesale trade with $4,002. Accommodation and food services paid newly hired workers the least with an average monthly wage of $1,153.

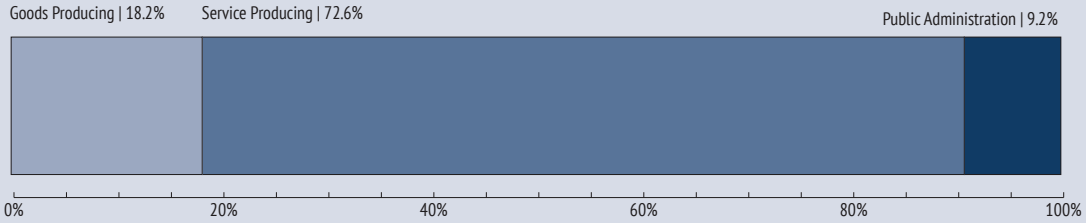
By broad industry classification, service providing industries generated 72.6 percent of jobs in first quarter 2020 (Figure 5.7). Goods producing industries were next with 18.2 percent and public administration accounted for 9.2 percent. The distribution is for all nonagricultural jobs in the region, but there is significant variation by county.

Table 5.8 Industry Mix (First Quarter 2020)

Industry by 2-digit NAICS Code	Total Employment	Share	Rank	Average Monthly Wage	Average Monthly New Hire Earnings
11 Agriculture,Forestry,Fishing and Hunting	1,766	0.64%	18	$3,805	$2,558
21 Mining	285	0.10%	20	$4,431	$2,947
22 Utilities	1,951	0.70%	17	$7,824	$6,840
23 Construction	11,168	4.03%	8	$4,515	$3,660
31-33 Manufacturing	37,131	13.4%	1	$4,746	$3,179
42 Wholesale Trade	8,099	2.9%	11	$5,747	$4,002
44-45 Retail Trade	32,222	11.6%	3	$2,741	$1,582
48-49 Transportation and Warehousing	10,682	3.9%	9	$3,666	$2,300
51 Information	2,965	1.1%	16	$5,201	$4,039
52 Finance and Insurance	7,698	2.8%	12	$6,383	$3,408
53 Real Estate and Rental and Leasing	3,399	1.2%	15	$3,650	$2,841
54 Professional,Scientific,and Technical Services	10,055	3.6%	10	$5,363	$3,639
55 Management of Companies and Enterprises	1,572	0.6%	19	$5,620	$2,705
56 Administrative and Support and Waste Management and Remediation Services	20,758	7.5%	7	$2,552	$1,986
61 Educational Services	26,418	9.5%	5	$4,001	$2,137
62 Health Care and Social Assistance	35,118	12.7%	2	$3,745	$2,448
71 Arts,Entertainment,and Recreation	5,008	1.8%	14	$2,329	$1,619
72 Accommodation and Food Services	27,721	10.0%	4	$1,683	$1,153
81 Other Services (except Public Administration)	7,219	2.6%	13	$3,417	$2,176
92 Public Administration	25,548	9.23%	6	$3,723	$2,524
ALL INDUSTRIES	**276,782**	**100.00%**		**$3,847**	**$2,302**

Note: Rounding errors may be present.
Source: Alabama Department of Labor and U.S. Census Bureau.

Figure 5.7 Central AlabamaWorks Employment Distribution (First Quarter 2020)

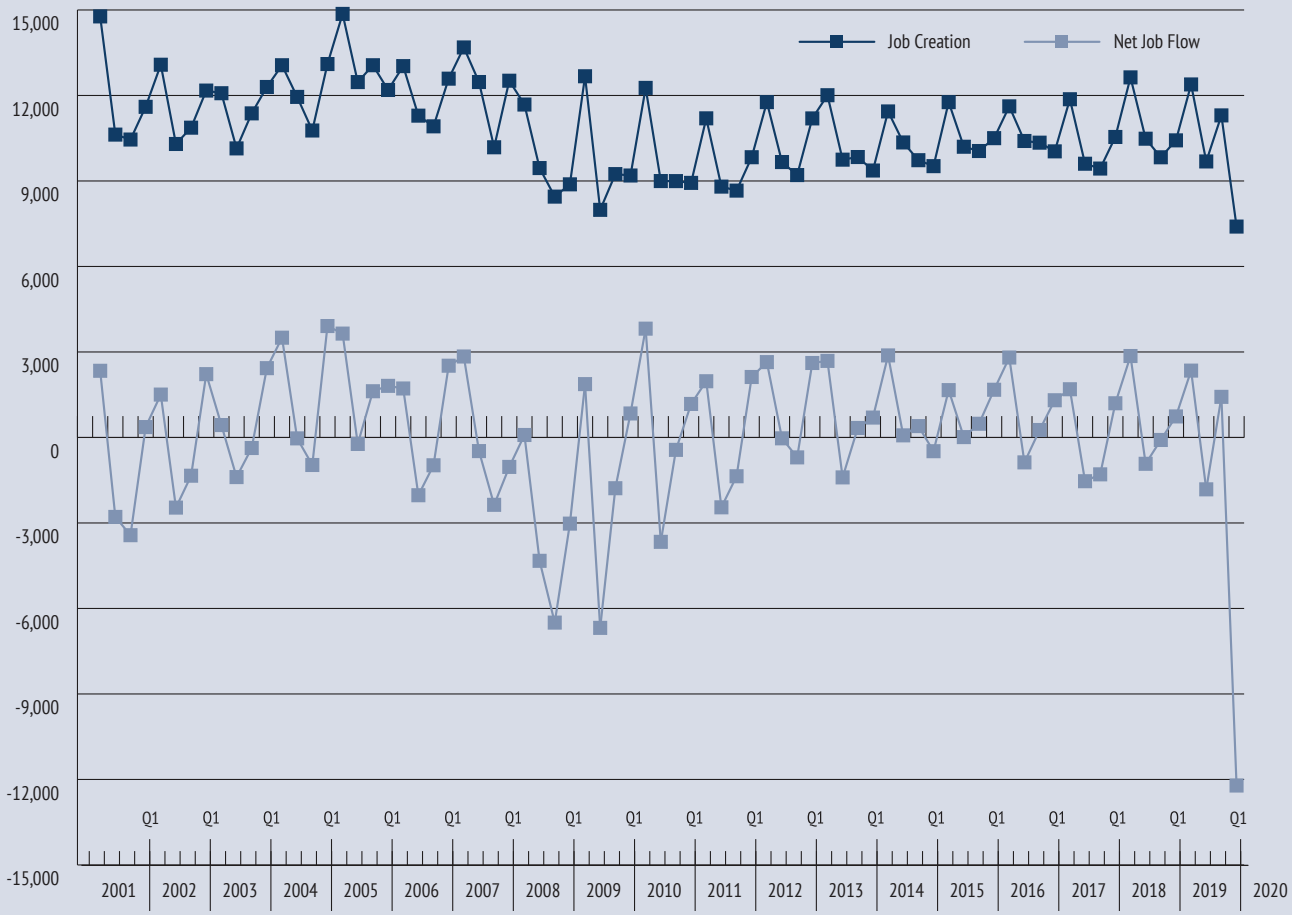


Source: Alabama Department of Labor and U.S. Census Bureau.

Job Creation and Net Job Flows

Job creation refers to the number of new jobs that are created either by new area businesses or through the expansion of existing firms. Net job flows reflect the difference between current and previous employment at all businesses. On average, 10,889 jobs were created per quarter from second quarter 2001 to first quarter 2020 (Figure 5.8). Quarterly net job flows averaged 27 jobs in the same period and generally mirrored the job creation pattern (Figure 5.8). Although both fluctuated over the years, they dropped to record low numbers in first quarter 2020 due to COVID-19 pandemic and the associated recession. Since the second quarter of 2001, quarterly net job flows have ranged from a loss of 12,213 in the first quarter of 2020 to a gain of 3,910 in the first quarter of 2005.

Figure 5.8 Central AlabamaWorks Job Creation and Net Job Flows



Source: Alabama Department of Labor and U.S. Census Bureau.

High-Demand, Fast-Growing, High-Earning, and Sharp-Declining Occupations

Central AlabamaWorks has 714 single occupations based on 2018 to 2028 occupational projections. Table 5.9 shows the top 40 occupations that are expected to be in high-demand, ranked by projected average annual job openings over the projection period. About half of these occupations are commonly found in two of the five largest employment sectors identified earlier (Table 5.8): health care and social assistance, accommodation and food services, and manufacturing. Thus, these sectors will continue to dominate employment in the region.

The top five high-demand occupations are Combined Food Preparation and Serving Workers, Including Fast Food; Retail Salespersons; Laborers and Freight, Stock, and Material Movers, Hand; Waiters and Waitresses; and Assemblers and Fabricators, All Other, Including Team Assemblers. Five of the high-demand occupations are also fast-growing. This means that these five occupations have a minimum annual growth rate of 1.96 percent, much faster than the regional and state occupational growth rates of 0.44 percent and 0.48 percent, respectively.

The top 20 fastest growing occupations ranked by projected growth of employment are listed in Table 5.10. The top five fast-growing occupations are Occupational Therapy Assistants; Information Security Analysts; Computer and Information Research Scientists; Maintenance Workers, Machinery; and Physician Assistants.

Table 5.11 shows the top 50 selected highest earning occupations in the region and are mainly in management, health care, engineering, and computer fields. These occupations paid a minimum mean salary of $93,251 a year for Health and Safety Engineers, Except Mining Safety Engineers and Inspectors and a maximum of $286,735 for Pediatricians, General. Of the top 10 high-earning occupations, six are health related occupations and the remainder are in management, computer fields, financial operations, and physicists. Any discussion of earnings must consider that wages vary with experience. Occupations with the highest average wages may not necessarily have the highest entry wages.

The selected high-earning occupations are generally not fast-growing or in high-demand. Five occupations are in both high-demand and high-earning (Table 5.9 and Table 5.11) and three are both fast-growing and high-earning occupations (Table 5.10 and Table 5.11). Only two occupations—Nurse Practitioners and Software Developers, Applications—are in high-demand, fast-growing, and high-earning (Table 5.9, Table 5.10, and Table 5.11).

Of the region's 714 occupations, 141 are expected to decline over the 2018 to 2028 period. Employment in the 20 sharpest declining occupations will drop by a minimum of 30 jobs each (for those with disclosed net change data) and at least three percent (Table 5.12) over the period. No efforts should be made to sustain these occupations because they are declining as a result of structural changes in the economy of the region.

Table 5.9 Selected High-Demand Occupations (Base Year 2018 and Projected Year 2028)

Occupation	Average Annual Job Openings		
	Total	Due to Growth	Due to Separations
Combined Food Preparation and Serving Workers, Including Fast Food	1,880	145	1,735
Retail Salespersons	1,450	15	1,435
Laborers and Freight, Stock, and Material Movers, Hand	1,160	40	1,125
Waiters and Waitresses	1,005	20	980
Assemblers and Fabricators, All Other, Including Team Assemblers	960	30	925
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	745	35	710
Heavy and Tractor-Trailer Truck Drivers	520	25	495
Registered Nurses	480	75	405
Stock Clerks and Order Fillers	445	15	435
First-Line Supervisors of Food Preparation and Serving Workers	440	20	420
Nursing Assistants	420	20	400
Helpers--Production Workers	420	45	375
Cooks, Restaurant	395	45	350
General and Operations Managers	**390**	**30**	**360**
Childcare Workers	390	15	375
Landscaping and Groundskeeping Workers	370	20	350
Personal Care Aides	370	45	330
Accountants and Auditors	350	20	330
Maintenance and Repair Workers, General	295	20	275
Light Truck or Delivery Services Drivers	275	15	260
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	270	20	255
Food Preparation Workers	255	10	245
First-Line Supervisors of Production and Operating Workers	250	20	225
Industrial Machinery Mechanics	215	30	185
Construction Laborers	215	15	200
First-Line Supervisors of Construction Trades and Extraction Workers	200	15	185
Medical Assistants*	150	25	130
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	135	15	120
Home Health Aides*	130	25	105
Management Analysts	**110**	**15**	**95**
Pharmacy Technicians	110	10	100
Nonfarm Animal Caretakers	105	10	95
Medical Secretaries	95	10	85
Computer User Support Specialists	90	10	85
Market Research Analysts and Marketing Specialists	80	10	65
Taxi Drivers and Chauffeurs*	75	10	60
Financial Managers	70	10	60
Industrial Engineers	70	10	55
Software Developers, Applications*	**50**	**15**	**35**
Nurse Practitioners*	**35**	**10**	**25**

Note: Occupations are growth- and wages weighted and data are rounded to the nearest 5. Occupations in bold are also high-earning.
* Qualify as both high-demand and fast-growing occupations.
Source: Alabama Department of Labor and Center for Business and Economic Research, The University of Alabama.

Table 5.10 Selected Fast-Growing Occupations (Base Year 2018 and Projected Year 2028)

Occupation	Employment		Percent Change	Annual Growth (Percent)
	2018	2028		
Occupational Therapy Assistants	NA	NA	47.83	3.99
Information Security Analysts	NA	NA	43.48	3.68
Computer and Information Research Scientists	NA	NA	39.13	3.36
Maintenance Workers, Machinery	190	260	35.05	3.05
Physician Assistants	90	130	34.41	3.00
Software Developers, Applications*	450	600	32.23	2.83
Speech-Language Pathologists	220	290	30.63	2.71
Physical Therapist Assistants	270	350	29.41	2.61
Athletic Trainers	70	90	29.17	2.59
Home Health Aides*	850	1,090	28.37	2.53
Nurse Practitioners*	410	520	27.18	2.43
Statisticians	70	90	27.03	2.42
Physical Therapist Aides	120	150	26.27	2.36
Adhesive Bonding Machine Operators and Tenders	NA	NA	26.19	2.35
Phlebotomists	340	430	25.66	2.31
Taxi Drivers and Chauffeurs*	510	630	23.03	2.09
Veterinary Assistants and Laboratory Animal Caretakers	290	350	22.49	2.05
Physical Therapists	380	460	21.96	2.00
Floor Layers, Except Carpet, Wood, and Hard Tiles	90	110	21.59	1.97
Medical Assistants*	1,060	1,290	21.46	1.96

Note: Employment data are rounded to the nearest 10 and job openings are rounded to the nearest 5. Occupations in bold are also high-earning.
* Qualify as both high-demand and fast-growing occupations.
Source: Alabama Department of Labor and Center for Business and Economic Research, The University of Alabama.

Skills and Skills Gap Analyses

Jobs require skill sets and it is necessary that jobholders have the relevant skills. Table 5.13 shows skill types and definitions as provided by O*NET Online, which offers skill sets for all occupations ranked by the degree of importance. High-earning occupations typically require skills that are obtained in the pursuit of the higher educational attainment levels that such jobs require. Lower earning occupations require more basic skill sets. Some occupations have no minimum skill set requirements (e.g., dishwashers and maids).

Table 5.14 shows the percentage of selected occupations in the region that list a particular skill as primary. We define primary skills as the 10 most important skills in the required skill set for an occupation. It is important to note that a particular skill may be more important and more extensively used in one occupation than another. Table 5.14 does not address such cross-occupational skill importance comparisons. In general, basic skills are most frequently listed as primary, which means that they are important for practically all jobs.

High-earning occupations require more active learning, critical thinking, learning strategies, math, reading comprehension, science, writing, complex problem solving, personnel resource management, financial resource management, instructing, negotiation, persuasion, judgment and decision making, and operations analysis skills than both high-demand and fast-growing jobs. Many of these skills require long training periods and higher educational attainment. However, high-earning jobs involve fewer technical skills than high-demand and fast-growing occupations. High-demand occupations need more resource management skills than fast-growing occupations; but less basic, complex problem solving, systems, and technical skills.

Table 5.11 Selected High-Earning Occupations (Base Year 2018 and Projected Year 2028)

Occupation	Employment		Annual Growth (Percent)	Average Annual Job Openings	Mean Annual Salary ($)
	2018	2028			
Pediatricians, General	NA	NA	-0.38	0	286,735
Physicians and Surgeons, All Other	670	700	0.44	25	214,035
Family and General Practitioners	100	110	0.39	5	212,859
Chief Executives	340	330	-0.36	25	195,989
Personal Financial Advisors	340	360	0.66	30	178,716
Dentists, General	180	200	0.64	5	161,101
Computer Network Architects	140	160	1.54	10	145,195
Nurse Anesthetists	150	170	1.58	10	136,135
Optometrists	70	80	1.33	5	134,141
Physicists	40	40	0.53	5	129,246
Architectural and Engineering Managers	220	250	1.47	20	124,884
Financial Managers*	740	850	1.41	70	124,015
Podiatrists	20	20	1.41	0	122,659
Health Specialties Teachers, Postsecondary	250	300	1.98	25	122,570
Economics Teachers, Postsecondary	50	50	0.65	5	121,940
Natural Sciences Managers	30	30	0.61	5	121,388
Training and Development Managers	NA	NA	0.67	5	121,208
Computer and Information Research Scientists	**NA**	**NA**	**3.36**	**15**	**121,185**
Pharmacists	780	780	-0.03	35	120,247
Computer and Information Systems Managers	420	460	0.91	40	118,909
Lawyers	1,460	1,540	0.53	80	117,100
Education Administrators, Postsecondary	560	590	0.61	50	115,169
Computer Science Teachers, Postsecondary	110	110	0.55	10	115,044
Business Teachers, Postsecondary	200	230	1.49	20	114,656
General and Operations Managers*	3,990	4,310	0.77	390	113,118
Sales Managers	300	310	0.56	30	112,908
Chiropractors	60	70	1.04	5	108,286
Computer Hardware Engineers	70	70	0.15	5	107,579
Operations Research Analysts	30	40	2.26	5	106,605
Construction Managers	660	700	0.72	55	104,253
Nurse Practitioners*	**410**	**520**	**2.43**	**35**	**103,955**
Industrial Production Managers	600	650	0.80	50	103,904
Administrative Law Judges, Adjudicators, and Hearing Officers	60	60	0.32	5	102,972
Marketing Managers	130	130	0.54	15	102,163
Purchasing Managers	90	90	0.55	5	102,101
Managers, All Other	1,630	1,700	0.40	135	101,003
Physics Teachers, Postsecondary	40	40	0.74	5	100,427
Power Distributors and Dispatchers	70	60	-0.46	5	99,387
Public Relations and Fundraising Managers	140	150	0.41	15	98,576
Administrative Services Managers	120	130	0.97	10	97,698
Medical and Health Services Managers	540	610	1.32	55	97,051
Electrical Engineers	210	220	0.75	15	96,903

Table 5.11 Selected High-Earning Occupations (Base Year 2018 and Projected Year 2028) Cont.

Veterinarians	220	270	1.74	15	96,850
Electronics Engineers, Except Computer	70	80	0.67	5	95,255
Internists, General	30	30	-0.34	0	95,089
Aerospace Engineers	20	30	1.29	0	94,651
Management Analysts*	920	1,060	1.41	110	94,613
Software Developers, Applications*	**450**	**600**	**2.83**	**50**	**93,363**
Software Developers, Systems Software	250	300	1.88	25	93,363
Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	20	20	0.51	0	93,251

Note: Employment and salaries data are rounded to the nearest 10; job openings to the nearest 5. The salary data provided are based on the May 2019 release of the Occupational Employment Statistics (OES) combined employment and wage file. Estimates for specific occupations may include imputed data.
Occupations in bold are also fast-growing. * Qualify as both high-earning and high-demand occupations. NA – Not available due to disclosure restrictions.
Source: Center for Business and Economic Research, The University of Alabama and Alabama Department of Labor.

Table 5.12 Selected Sharp-Declining Occupations (Base Year 2018 and Projected Year 2028)

Occupation	Employment		Net Change	Percent Change
	2018	2028		
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	7,520	6,820	-700	-9
Office Clerks, General	6,250	5,950	-300	-5
Inspectors, Testers, Sorters, Samplers, and Weighers	2,650	2,420	-230	-9
Telemarketers	720	570	-150	-21
Executive Secretaries and Executive Administrative Assistants	660	520	-140	-21
Correctional Officers and Jailers	1,530	1,410	-120	-8
Bookkeeping, Accounting, and Auditing Clerks	3,530	3,410	-120	-3
Computer Programmers	1,050	940	-110	-10
Legal Secretaries	620	510	-110	-16
Tellers	1,450	1,350	-100	-6
Cooks, Fast Food	1,010	920	-90	-9
Postal Service Mail Carriers	820	740	-80	-10
Data Entry Keyers	260	200	-60	-24
Cabinetmakers and Bench Carpenters	630	570	-60	-10
Switchboard Operators, Including Answering Service	140	100	-40	-27
Structural Metal Fabricators and Fitters	320	280	-40	-11
Photographers	270	240	-30	-14
Postal Service Mail Sorters, Processors, and Processing Machine Operators	200	170	-30	-14
Computer Operators	140	110	-30	-21
Word Processors and Typists	90	60	-30	-33

Note: Employment data are rounded to the nearest 10.
Source: Alabama Department of Labor and Center for Business and Economic Research, The University of Alabama.

Table 5.15 shows skill gap indexes for all 35 skills in Table 5.14 based on 2018 to 2028 occupational projections. Skills gap indexes by definition range from 0 to 100 and are standardized measures of the gap between current supply and projected demand. The index does not provide any information about current or base year skill supply. It focuses on the projection period and identifies critical skill needs. The index essentially ranks expected training needs. The higher the index the more critical the skill over the specified projection period; thus, a higher skill gap index indicates a need to increase the scale of training.

For policy and planning purposes, skill gap indexes have to be considered together with replacement indexes, which are the expected shares of job openings due to replacement. Replacement is necessary because of turnover and people leaving the labor force. The smaller the replacement index, the larger the share of job openings due to growth, which in turn implies a need to increase the pace of skill training. Skill gap indexes demonstrate the need to ramp up the scale of skill training while replacement indexes address the pace of training.

By skill type, the skill gap indexes show that basic skills are most critical in Central AlabamaWorks followed by social, complex problem solving, resource management, systems, and technical skills. The importance of basic skills generally and for high-demand, high-growth, and high-earning jobs indicates a strong need for training in these skills. The pace of training needs to increase for technical and basic (particularly science) skills. The scale of training should be raised for basic and social skills.

Table 5.13 Skill Types and Definitions

Basic Skills: Developed capacities that facilitate learning or the more rapid acquisition of knowledge.

- Active Learning – Understanding the implications of new information for both current and future problem-solving and decision-making.
- Active Listening – Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Critical Thinking – Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.
- Learning Strategies – Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.
- Mathematics – Using mathematics to solve problems.
- Monitoring – Monitoring / Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
- Reading Comprehension – Understanding written sentences and paragraphs in work-related documents.
- Science – Using scientific rules and methods to solve problems.
- Speaking – Talking to others to convey information effectively.
- Writing – Communicating effectively in writing as appropriate for the needs of the audience.

Complex Problem Solving Skills: Developed capacities used to solve novel, ill-defined problems in complex, real-world settings.

- Complex Problem Solving – Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

Resource Management Skills: Developed capacities used to allocate resources efficiently.

- Management of Financial Resources – Determining how money will be spent to get the work done and accounting for these expenditures.
- Management of Material Resources – Obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to do certain work.
- Management of Personnel Resources – Motivating, developing, and directing people as they work, identifying the best people for the job.
- Time Management – Managing one's own time and the time of others.

Social Skills: Developed capacities used to work with people to achieve goals.

- Coordination – Adjusting actions in relation to others' actions.
- Instructing – Teaching others how to do something.
- Negotiation – Bringing others together and trying to reconcile differences.
- Persuasion – Persuading others to change their minds or behavior.
- Service Orientation – Actively looking for ways to help people.
- Social Perceptiveness – Being aware of others' reactions and understanding why they react as they do.

Systems Skills: Developed capacities used to understand, monitor, and improve socio-technical systems.

- Judgment and Decision Making – Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Systems Analysis – Determining how a system should work and how changes in conditions, operations, and the environment will affect outcomes.
- Systems Evaluation – Identifying measures or indicators of system performance and the actions needed to improve or correct performance, relative to the goals of the system.

Technical Skills: Developed capacities used to design, set-up, operate, and correct malfunctions involving application of machines or technological systems.

- Equipment Maintenance – Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.
- Equipment Selection – Determining the kind of tools and equipment needed to do a job.
- Installation – Installing equipment, machines, wiring, or programs to meet specifications.
- Operation and Control – Controlling operations of equipment or systems.
- Operation Monitoring – Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Operations Analysis – Analyzing needs and product requirements to create a design.
- Programming – Writing computer programs for various purposes.
- Quality Control Analysis – Conducting tests and inspections of products, services, or processes to evaluate quality or performance.
- Repairing – Repairing machines or systems using the needed tools.
- Technology Design – Generating or adapting equipment and technology to serve user needs.
- Troubleshooting – Determining causes of operating errors and deciding what to do about it.

Source: O*NET Online (http://online.onetcenter.org/skills/).

Table 5.14 Percentage of Selected Occupations for Which Skill Is Primary

	Selected High-Demand Occupations	Selected Fast-Growing Occupations	Selected High-Earning Occupations
Basic Skills			
Active Learning	25	50	62
Active Listening	75	100	92
Critical Thinking	60	80	92
Learning Strategies	0	5	14
Mathematics	5	5	12
Monitoring	60	75	46
Reading Comprehension	50	80	90
Science	3	10	24
Speaking	70	95	92
Writing	20	50	62
Complex Problem Solving Skills			
Complex Problem Solving	33	35	74
Resource Management Skills			
Management of Financial Resources	0	0	2
Management of Material Resources	0	0	0
Management of Personnel Resources	8	0	12
Time Management	30	30	18
Social Skills			
Coordination	45	35	26
Instructing	13	15	16
Negotiation	8	0	10
Persuasion	8	10	12
Service Orientation	38	55	14
Social Perceptiveness	48	65	38
Systems Skills			
Judgment and Decision Making	25	55	78
Systems Analysis	8	15	8
Systems Evaluation	5	10	10
Technical Skills			
Equipment Maintenance	5	5	0
Equipment Selection	5	0	0
Installation	0	0	0
Operation and Control	18	15	2
Operation Monitoring	13	15	2
Operations Analysis	3	5	8
Programming	3	10	4
Quality Control Analysis	3	10	0
Repairing	5	10	0
Technology Design	0	0	0
Troubleshooting	8	5	0

Note: Rounding errors may be present.
Source: O*NET Online and Center for Business and Economic Research, The University of Alabama

Table 5.15 Skills Gap Indexes (Base Year 2018 and Projected Year 2028)

Skill	Skill Type	Total Openings (Projected Demand)	Skills Gap Index	Replacement Index
Active Listening	Basic	29,085	75	96
Speaking	Basic	28,520	73	96
Monitoring	Basic	24,865	64	95
Critical Thinking	Basic	22,565	58	95
Coordination	Social	22,460	58	96
Social Perceptiveness	Social	22,400	58	94
Service Orientation	Social	22,185	57	96
Reading Comprehension	Resource	20,325	52	95
Time Management	Basic	20,115	52	96
Judgment and Decision Making	Systems	15,015	39	94
Writing	Basic	14,815	38	95
Active Learning	Basic	14,085	36	94
Complex Problem Solving	Complex	12,595	33	93
Persuasion	Social	10,200	27	94
Instructing	Social	9,185	24	92
Negotiation	Social	8,385	22	96
Learning Strategies	Basic	8,170	21	92
Mathematics	Systems	5,935	16	93
Operation Monitoring	Technical	5,860	15	94
Management of Personnel Resources	Systems	5,615	15	92
Systems Analysis	Basic	5,345	14	95
Operation and Control	Resource	5,225	14	94
Quality Control Analysis	Technical	5,210	14	94
Systems Evaluation	Technical	4,465	12	95
Troubleshooting	Technical	3,040	8	95
Equipment Maintenance	Technical	2,170	6	94
Repairing	Technical	1,605	5	93
Operations Analysis	Resource	1,465	4	94
Management of Financial Resources	Technical	1,175	3	87
Equipment Selection	Resource	1,160	3	93
Management of Material Resources	Technical	1,035	3	94
Science	Basic	685	2	80
Installation	Technical	590	2	95
Programming	Technical	310	1	85
Technology Design	Technical	125	1	68

Note: These are annualized skills indexes based on 2018 to 2028 occupation projections.
Source: Center for Business and Economic Research, The University of Alabama, Alabama Department of Labor, and O*Net Online

Education and Training Issues

Educational attainment in Central AlabamaWorks is slightly lower than that of Alabama for graduates with at

least a high school diploma, but is higher for those with at least a bachelor's degree. Of the population age 25 and over, 86.0 percent had graduated from high school in 2015 to 2019, compared to 86.2 percent for the state. During the same period, 27.0 percent of people in the region had at least a bachelor's degree versus the state's 25.5 percent. Skill and education requirements for jobs keep rising. This highlights a strong need to raise educational attainment in the region especially since only three counties—Autauga, Lee, and Montgomery—had higher bachelor's degree attainment than Alabama.

Table 5.16 shows the number of selected occupations in the region for which a particular education/training category is most common. In general, high-earning occupations require high educational attainment levels; only one of the 50 highest-earning occupations does not require a bachelor's or higher degree. Eleven (55.0 percent) of the top 20 fast-growing occupations require an associate degree at the minimum and nine (45.0 percent) require a bachelor's or higher degree. However, some skilled workers among high-demand occupations such as manufacturing assembly, transportation, and construction jobs do not necessarily require higher educational attainment. Consequently, of the 40 high-demand occupations nine (22.5 percent) require a bachelor's or higher degree.

The 2018 to 2028 occupational projections indicate that future jobs will require postsecondary education and training at a minimum. Job ads are increasingly requiring at least a high school diploma or GED. Of the region's 714 occupations, 20 are expected to decline sharply over the period and education and training for these should slow accordingly.

Table 5.16 Number of Selected Occupations by Education/Training Requirement

Most Common Education/Training Requirements Categories	Selected High-Demand Occupations	Selected Fast-Growing Occupations	Selected High-Earning Occupations
Doctoral Degree or First Professional Degree	0	1	18
Master's Degree	1	5	4
Bachelor's Degree	8	3	27
Associate Degree	0	2	0
Postsecondary Non-Degree	4	2	0
Some College, no Degree	1	0	0
High School Diploma or Equivalent	16	7	1
No Formal Educational Credential	10	0	0

Source: O*NET Online; Center for Business and Economic Research, The University of Alabama; and Alabama Department of Labor.

IMPLICATIONS AND RECOMMENDATIONS

Regional employment growth is projected to be greater than the growth of the main working age population in the long term. From a 2018 base, worker shortfalls of about 3,700 and 9,800 are expected for 2028 and 2030, respectively (Table 5.17). Worker shortfall will reach about 14,800 in 2035 and 20,900 by 2040. This demands a focus on both worker skills and the expected shortfall through 2040. Worker shortfalls may vary from the estimates because of BRAC-related troop increases and growth at nearby Fort Benning in Georgia, which are partially responsible for the expected population gains in Russell County. Lee County is also expected to experience more job and population growth due to Auburn University's effects and aggressive business recruitment. A focus on both worker skills and the expected shortfall must be priorities through 2040. Worker shortfalls for critical occupations will need to be addressed as well.

Employment is critical to economic development and so strategies to address worker skill needs and potential shortfalls for critical occupations must be adopted and implemented. Such strategies should aim at increasing labor force participation and raising worker productivity and might include: (1) improvements in education and its funding; (2) continuation and enhancement of programs to assess, retrain, and place dislocated workers; (3) focusing on hard-to-serve populations (e.g., out-of-school youth); (4) lowering the high school dropout rate; (5) use of economic opportunities to attract new residents; (6) facilitation of in-commuting; and (7) encouragement of older worker participation in the labor force.

Improving education is vital because a highly educated and productive workforce is a critical economic development asset. The education and training requirements of high-demand, fast-growing, and high-earning occupations show the significance of education in developing the workforce of the future. The importance of basic skills generally and for high-demand, high-growth, and high-earning jobs in particular demonstrates a strong need for training in these skills. The region's pace of training needs to increase for technical and basic (particularly science) skills while the scale of training needs to be raised for basic and social skills. Ideally, all high school graduates should possess basic skills so that postsecondary and higher education can focus on other and more complex skills while enhancing these basic skills. Employers should be an integral part of planning for training as they can help identify future skill needs and any existing gaps. Education and training for the 20 sharp-declining occupations in Table 5.12 should slow accordingly.

Another very important reason to improve education is that more educated people are more likely to work; data on worker participation and educational attainment show that labor force participation increases with worker education. Productivity also rises with education, which yields high private and public returns. Workforce development must view all of the education and other programs (e.g., adult education, career technical training, worker retraining, career readiness, etc.) as one system. Funding to support workforce development may require tax reform at state and local levels and must provide for flexibility as workforce needs change over time and demand different priorities.

Programs to assess, retrain, and place dislocated workers—especially those affected by outsourcing and structural changes in the economy—should be continued and enhanced because they can improve the labor force participation rate. Hard-to-serve populations include out-of-school youth, persons in poverty, those receiving welfare, residents of sparsely populated areas, and those

Table 5.17 Expected Worker Shortfall

	2018-2028	2018-2030	2018-2035	2018-2040
Total population growth (percent)	6.5	7.9	11.9	16.4
Age 20-64 growth (percent)	1.1	1.6	5.2	9.3
Job growth (percent)	2.3	4.9	10.1	16.2
Worker shortfall (percent)	1.2	3.2	4.9	6.9
Worker shortfall (number)	3,661	9,764	14,753	20,931

Source: Center for Business and Economic Research, The University of Alabama.

on active parole. These populations are often outside of the mainstream economy and are poor. They usually have difficulty finding work because they have low levels of educational attainment, lack occupational skills, or face geographic or other barriers. They are a potential human resource, but investment in training, transportation, childcare, infrastructure, etc. may be needed to tap this resource.

In-migration is one way of growing the labor force as it helps population growth. The region's population growth rate is slightly above the state growth but is not adequate to meet long term job demand. Further growth in employment demand could be served somewhat with in-commuting or a reduction in out-commuting. However, new residents can be attracted using higher-paying job opportunities from the region's economic development successes. Investment in amenities and infrastructure may be needed to support such growth. In-migration is generally more beneficial than in-commuting since it grows the economy faster and adds to the tax base.

Policies that facilitate and encourage older worker participation are needed as older workers can help meet the region's workforce challenges. Such policies could be related to income taxation, job flexibility, and retirement programs. As the share of older people in the population is projected to increase, it becomes even more important that they be active in the workforce. Older worker participation has been rising nationally since the early 1990s. This has been attributed to reasons including:

- Older workers can work longer because they are healthier.
- The number of physically demanding jobs is falling.
- Defined contribution plans are replacing pensions.
- There are fewer employer-paid retiree health insurance programs.
- Social security reforms affecting those born after 1938 (i) gradually raise the normal retirement age from 65 to 67, (ii) increase the rate at which monthly payments rise with delayed benefits, and (iii) eliminate the reduction in benefits for those working beyond the full retirement age.

Diversifying the region's economy will strengthen it. This demands that economic development also focus on retaining, expanding, and attracting businesses that provide more high-earning jobs. Current workers—including the underemployed—would welcome higher-earning opportunities. An economic development focus on diversification would require that workforce development pay attention to postsecondary and higher educational systems to ensure a ready and available workforce for new and expanding businesses. The higher incomes earned by graduates of these institutions will help raise personal income for the region and provide additional local (county and city) tax revenue. Raising personal income by improving educational attainment and technological skills is an effective economic development strategy, even for a region that has above average population and labor force growth rates. Together, workforce development and economic development can build a strong, well-diversified economy. Indeed, it is not possible to achieve success without the other.

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